Liverpool being also present. At 3 o'clock the opening ceremony took place in the arts theatre of the University, a large and distinguished company being present. Mr. E. K. Muspratt formally presented the new laboratory to the University, and in a very interesting speech expressed his conviction that physical chemistry was that branch of chemistry which was most likely to advance knowledge at the present time. Sir John Brunner had founded the chair of physical chemistry at Liverpool. In order to complete this valuable gift a laboratory was necessary, and so he (Mr. Muspratt) had resolved to build and equip a laboratory of physical and electrochemistry. He was glad to see that a considerable number of rooms had been reserved for research work in the new building. He wished to emphasise in the strongest manner the necessity of research being most actively carried out in the University. He was convinced of the importance of electrochemistry, and so he had taken care that the new laboratory should have an adequate electrical equipment.

Vice-Chancellor A. W. W. Dale formally received Mr. Muspratt's gift on behalf of the University, the Earl of Derby, Chancellor of the University, not being able to be present. The Vice-Chancellor referred in glowing terms to the liberality and generosity of Mr. E. K. Muspratt, who had already increased his original gift of 10,000*l.* to something like 14,000*l.* Sir W. Ramsay, in an interesting address, dealt with the paramount necessity of cultivating the "troublesome habit of thinking," as against the subconscious or semi-unconscious processes of brain action. It was the duty of the University to strive with all its power to induce young men to cultivate independent thought. A man might be a walking dictionary, but, if he was, he had all the defects of a dictionary—the words were there, but they formed disconnected and desultory reading. The power to be desired was not specially to remember the words, but to build them up into living sentences. The chief duty of a chair of physical chemistry was to teach men to think for themselves. He would advise that as soon as might be the student of that fascinating subject should be induced by example, precept, sympathy, exhortation, and by all means whereby young human minds could be influenced, to extend the bounds of their subject.

After Sir John Brunner had moved a vote of thanks to Sir W. Ramsay for his very interesting address, which was seconded by Prof. Donnan, the company adjourned to inspect the new laboratory. At five o'clock Prof. Ostwald delivered a highly original and interesting address on the fundamental principles of chemistry, in which he showed that the phases occurring in nature are all solutions, and that the concepts of pure substances are only ideal limiting cases. In fact, a "pure" substance was simply a phase which, within certain limits, boiled or froze at a constant temperature. It was an artificial product. In the evening the guests of the University were entertained to dinner at the University Club by the Liverpool section of the Society of Chemical Industry.

The following brief description of the new laboratory may be of interest to the readers of NATURE. The building, which is connected with the main chemical institute, contains a basement, ground, first, and second floors. The basement includes a dynamo room, battery room, furnace room, store, and a research room for six students. The generating plant consists of motor-generators driven off the city mains at 460 volts, and comprises a 30-kilowatt direct-current generator supplying current at 80–100 volts, a 10-kilowatt charging set consisting of two machines on the same axis each giving 250 amperes at 20 volts, and an 80-kilowatt alternator with two windings to give 1000 amperes at 80 volts or 500 amperes at 150 volts. The charging set is employed to charge in sections a battery of thirty-six Tudor cells, divided up into six sets of six cells, so that different floors or rooms may have the use of separate sets. Vertical cables carry the current from the machines and accumulators to four distributing exchange-boards (one on each floor), whence run circuits (to carry 50 amperes) to the working benches. It is possible by means of flexible connections to connect up on the exchange-board the terminals at each working bench with the required voltage. From the battery switch-board three wires run to each of three exchange-boards, the arrangement being such that each of the latter is supplied with current at 4, 8 and 12 volts from a different set of cells. Specially heavy cables and terminals are arranged to permit of employing 1000 amperes (direct or alternating) in the basement furnace room. The ground floor contains a lecture room with accommodation for about ninety students, a preparation room, library, workshop, and photographic room. The second floor contains a junior laboratory to hold twenty-one students, a balance and switch room, an optical room, a room for three advanced students, research room for a member of the staff, and an instrument store room. The second floor comprises a senior laboratory for eight students, a balance and switch room, and four research rooms. On the roof there is a lavatory, a distillation room, and arrangements for carrying out work in the open air.

All working benches are supplied with gas, water, and electricity. The current is carried by uninsulated wire run on the walls and ceilings by means of wooden battens and porcelain insulators, and terminating in slate panels fixed on wooden battens above the working benches. Close to each bench is a fire-proof slab constructed of compressed red Ruabon tiles set in cement. Each centre bench carries a sink at one end and a thermostat at the other.

The architects of the building are Messrs. Willink and Thicknesse, Castle Street, Liverpool.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—Prof. Somerville, Sibthorpian professor of rural economy, has been elected to a fellowship at St. John's College.

Mr. J. E. Marsh, F.R.S., Balliol College, has been elected to a fellowship at Merton College.

Scholarship examinations in natural science have been announced for the following dates:—December 4, Balliol, Christ Church, and Trinity Colleges; December 11, University, Magdalen, and Lincoln Colleges; January 15, 1907, Jesus College.

CAMBRIDGE.—Dr. G. H. F. Nuttall, F.R.S., fellow of Christ's College, and university lecturer in hygiene, has been appointed the first Quick professor of biology; until the Senate shall otherwise determine, "to devote himself to the study of the Protozoa, especially such as cause disease, and generally to promote that branch of study." Owing to the terms of the will of the late Frederick James Quick, the professorship is not tenable for more than three years without re-election.

The voting on the proposed changes in the mathematical tripos will take place at 2 p.m. on Thursday, October 25.

The Government of India has awarded Mr. A. R. Brown, "Anthony Wilkin" student in ethnology and archæology, the sum of 300*l.* to assist him in carrying on his researches amongst the natives of Andaman and Nicobar Islands.

Mr. H. Yule Oldham, the reader in geography, will give a course of public lectures this term on the history of geographical discovery, on Thursdays at 5 p.m., beginning to-day, in the Sedgwick Museum.

The Clerk Maxwell scholarship is vacant by the resignation of Mr. O. W. Richardson, who has accepted a professorship at Princeton, New Jersey. Candidates for the scholarship should send their applications to Prof. J. J. Thomson.

MR. J. W. MCBAIN has been appointed lecturer in chemistry at University College, Bristol. Mr. McBain is a graduate of the University of Toronto, and has also studied for several years in Germany.

NEW physical and engineering laboratories were opened at Edinburgh University on Tuesday. Mr. Balfour presided over the ceremony, and an address on the progress of scientific research was given by Mr. Andrew Carnegie.

THE *British Medical Journal* states that the authorities of the Victoria University, Manchester, have received a sum of 5000*l.* from the trustees appointed under the will of the late Miss Middleton, and have allocated this amount towards the endowment of the chair of anatomy.

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THE year-book of the Michigan College of Mines, a pamphlet of 132 pages, accompanied by an atlas of views showing the methods pursued and the facilities for practical instruction afforded by the immediate surroundings, has been received. Established in 1885, and situated in the centre of the Lake Superior mining district, the college furnishes an excellent practical and theoretical training in mining and kindred subjects.

A COURSE of eight lectures on "The Carbohydrates and their Relations to Living Organisms" will be given in the physiology department of University College, University of London, by Dr. S. B. Schryver, on Wednesdays at 5 p.m., beginning on Wednesday, October 24. These lectures are open to all students of the University of London, also to qualified medical men on presentation of their cards, and to such other persons as are specially admitted.

A COURSE of four lectures on the "Phylogeny of the Higher Crustacea" will be given in the zoological lecture room of University College, London, by Dr. W. T. Calman, at 5 p.m., on Wednesdays during October and November, beginning on October 24. The lectures are for advanced students of the University and others interested in zoology. There is no fee for the course; cards of admission may be obtained on application to Mr. P. J. Hartog, academic registrar of the University.

AT the opening of the winter session at St. Andrews University on October 12, Principal Donaldson announced that the Lord Rector, Mr. Carnegie, has offered 10,000*l.* to build such an addition to the University library as will provide ample space for all the books of the University, and a room where students can read with perfect quiet and with easy access to whatever they may require. Mr. Carnegie has also promised a donation of 11,500*l.* for a physical laboratory at University College, Dundee.

ACCORDING to *Science*, improvements have been made during the summer at Cornell University which will greatly strengthen the scientific work. New and enlarged quarters have been provided for the engineering department and the departments of geology, physics, and biology. Quantitative and organic laboratories have been provided for the chemical department. A large amount of apparatus has been secured for the different subjects. By the death of the sister of the late Mr. W. W. Guiteau, the University will receive the legacy left by him, said to amount to between 20,000*l.* and 40,000*l.*

THE Board of Education, South Kensington, has issued the following list of candidates successful in the competition for the Whitworth scholarships and exhibitions, 1906:—(1) *Scholarships (tenable for three years), 125l. a year each*:—Frederick G. Turner, London; William E. Hogg, London; Sidney G. Winn, London; Samuel Lees, Manchester.—(2) *Exhibitions (tenable for one year), value 50l.*:—William F. Cobbett, Gosport; William H. Mead, Southsea; Arthur Williams, Brymbo, Wrexham; James Bradley, Hollinwood, Lancs; George E. Morgan, Portsmouth; Albert C. H. Connor, Gillingham, Kent; Edgar J. Mitchell, Devonport; George O. Dawe, Devonport; Ernest Bate, London; Henry W. Turner, Portsmouth; William H. C. Coombe, Devonport; Edwin M. Vigers, London; Ronald E. Widdecombe, Saltash; Frederick R. Rogers, Devonport; Frank H. Cothay, Sunderland; Sidney Vernon, Abbey Wood, Kent; Frank R. Bloor, Gillingham, Kent; George W. Burley, Meersbrook, Sheffield; Robert James, Pembroke Dock; Sidney C. Gladwyn, London; Frederick C. Worton, London; John Airey, Bradford, Yorks; Charles A. Wright, Preston; William G. Weaver, Brighton; William E. Stokes, London; Thomas B. Bardo, Sheerness; Alfred Bailey, Oldham; John S. Buchanan, Cambuslang, Glasgow; Albert E. Palmer, Sunderland; Henry W. Maskell, London.

THE following list of successful candidates for Royal exhibitions, national scholarships, and free studentships (science) has just been issued by the Board of Education, South Kensington:—*Royal Exhibitions:* Walter H. Stock, Swindon; John M. Robertson, Pembroke Dock; John C. Nixon, Southsea; Thomas W. Page, Ipplepen, Newton Abbot; Charles A. Brearley, Halifax; William F. Cobbett, Gosport; Herbert Schofield, Halifax. *National Scholarships for Mechanics*:—Henry S. Rowell, West Benwell, Newcastle-on-Tyne; Joseph J. Brooks, Devonport; Albert C. H. Connor, Gillingham, Kent; Frederick Hickey, Southsea; William H. Mead, Southsea. *Free Studentships for Mechanics*:—Arthur C. Lowe, Harrogate; Frank R. Bloor, Gillingham, Kent; John Airey, Bradford, Yorks. *National Scholarships for Physics*:—Douglas V. Plumbridge, Isleworth; Andrew McCance, Glasgow; Thomas Royds, Oldham; Henry J. Lomax, Darwen; John N. Brown, London. *Free Studentship for Physics*:—Edward F. Pattenden, Whitstable. *National Scholarships for Chemistry*:—Arthur Bramley, Elland, Yorks; Harold W. Atkinson, New Mills, Stockport; Fred Bridge, Burnley; William A. Naish, Handsworth, Birmingham; Norman M. Comber, Brighton; Percy G. Ward, Brighton. *Free Studentship for Chemistry*:—Henry V. A. Briscoe, London. *National Scholarships for Biology*:—Rowland M. Richards, Manningham, Bradford; James H. Orton, Bradford, Yorks; Katie Barratt, Swanley, Kent. *Free Studentship for Biology*:—James L. Thompson, London. *National Scholarships for Geology*:—Abraham Haworth, Burnley; Arthur T. Cundy, Redruth; Ernest Lee, Burnley.

AT the distribution of prizes at the Royal Technical Institute, Salford, on October 11, Mr. H. B. Knowles, the principal, read an encouraging report. Speaking of the value of the training given in day technical schools, he said:—"It may be that a youth who has left school at the earliest moment allowed by the law will at the age of seventeen or eighteen have secured a position better paid than the one a student obtains immediately on leaving technical day classes, although in many cases the training received has given immediate access to a career which would otherwise have been inaccessible. The proper time for such a comparison would, however, be some half-dozen years after; and I have weighty reasons for my confidence that then it would be found that the two or three years spent in technical departments had been in every respect a most profitable investment." The principal also directed attention to two important developments in connection with the Salford arrangements for the current session. First, the correlation between the work at the institute and the work in evening schools has been made more real by the stipulation that all applicants for admission to the institute under sixteen years of age shall, before admission, pass an examination in English and mathematics. Secondly, courses of instruction suitable for students occupied in the various trades, and extending over four or five years, have been arranged on the basis of attendance at classes on three evenings per week. An added inducement to take these courses has been offered by making the fee for a course small as compared with the fees for the individual classes constituting the course. A great improvement in the quality of much of the work is expected as a result of this arrangement.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 15.—"Observations on the Labyrinth of Certain Animals." By Dr. Albert A. **Gray**.

The labyrinths of six animals were examined, and the conditions found may be summarised as follows:—The labyrinth of the lion presents the usual features of the Carnivora. The cochlea is of the sharp-pointed type, and there is hardly any evidence of a perilymph space in the semicircular canals. The Indian gazelle has a cochlea of a flat type, and there is a trace of a perilymph space in the canals. In the three-toed sloth the cochlea is of a flat type. The canals are almost square, and the perilymph space is well marked. The labyrinth of the wallaby is like that of the ungulates, but two large otoliths are present in the vestibule.

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